



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/737,606	12/14/2000	Pierre Leroux		8081

7590 09/20/2002

Corporate Patent Counsel  
Philips Electronics North America Corporation  
580 White Plains Road  
Tarrytown, NY 10591

EXAMINER

MAGEE, THOMAS J

ART UNIT PAPER NUMBER

2811

DATE MAILED: 09/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/737,606

Applicant(s)

LEROUX, PIERRE

Examiner

Thomas J. Magee

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-7 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Claims 1 – 7 in Letter No. 6 of May 29, 2002 is acknowledged.

### ***Claim Rejections – 35 U.S.C. 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou (US 6,172,409 B1) in view of Ultratech Model 1000 Stepper Product Sheet.

Zhou discloses (Col. 6, lines 48 – 67; Col. 7, lines 4 – 13) a set of alignment targets, located within scribe lines (Figure 4) at the sides of rectangular die, consisting of a series of lines (12a – 12 d) (See Figure 1) at the midpoint along a scribe line. Zhou does not disclose the “size” of the stepper shot to be utilized in the alignment procedure, but it is well known that the shot can be made to overlap several die with the scribe lines at an edge of the shot perimeter (See Ultratech Stepper Inc., as an example, Ultratech Model 1000 Stepper Product Sheet). Further, the shot size can be adjusted to include several die with alignment marks at first and second sides, where the alignment targets are at midpoints of a side of stepper shot.

Art Unit: 2811

4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou in view of Ultratech Model 1000 Stepper Product Sheet, as applied to Claims 1 and 2, and further in view of Wolf et al. ("Silicon Processing for the VLSI Era: Vol. 1" Lattice Press, Sunset Beach, CA., (1986), p. 478) and Banks ("Introduction to Microengineering," Demon Co., England (1999), p.2).

Zhou does not disclose the formation of targets by either a positive or negative resist process. However, the formation of features on a material (such as chrome) by these procedures is notoriously well known in the art. Wolf et al. discloses (page 478, Figure 21) the formation of "clear-field" (positive) and "dark-field" (negative) patterns, corresponding to transparent or opaque fields (raised or depressed features). Banks discloses (page 2, 3<sup>rd</sup> through 5<sup>th</sup> paragraph) how a negative image (depression on mask) is transferred through the process to a target to produce a positive feature or a negative feature. Hence, it would have been obvious to one of ordinary skill in the art at the time of the invention to add Wolf et al. and Banks to Zhou to obtain a process for producing alignment targets by a positive or negative photoresist step onto scribe lines of a wafer surface to form raised or depressed target features.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou in view of Ultratech Model 1000 Stepper Product Sheet, as applied to Claims 1 and 2.

As discussed previously, since the alignment targets of Zhou are located along scribe lines at the edge of die, a stepper "shot" can be adjusted to include a target at the boundary of the shot in most commercial steppers (See Ultratech Stepper Product

Art Unit: 2811

Sheet) as a "first" shot and subsequently set, such that the same target is used in the second stepper shot in the region adjoining the first region. Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine capabilities of a commercial stepper (such as Ultratech Stepper) with Zhou to provide the ability to overlay alignment targets in subsequent stepper shots in adjacent regions.

6. Claim 7 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Zhou in view of Ultratech Model 1000 Stepper Product Sheet, as applied to Claims 1 and 2 above. Zhou discloses (Col. 6, lines 57 – 61) that the alignment marks in sets have an alignment with respect to each other to include perpendicular, parallel or other combinations to include (Col. 3, lines 21 – 29) squares, rectangles, T-shape, or a cross shape.

***Allowed Subject Matter***

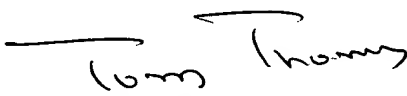
7. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. A review of the prior art shows that in the instant application, the positioning of alignment targets constituting discrete line features within scribe lines such that the stepper shot would include a reference at each corner of the shot is not taught or suggested by the art.

Art Unit: 2811

***Conclusions***

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to **Thomas Magee**, whose telephone number is **(703) 305 5396**. The Examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM (EST). If attempts to reach the Examiner by telephone are unsuccessful, the examiner's supervisor, **Tom Thomas**, can be reached on **(703) 308-2772**. The fax number for the organization where this application or proceeding is assigned is **(703) 308-7722**.

Thomas Magee  
September 18, 2002

  
TOM THOMAS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800